

## II. Remarks

Reconsideration and allowance of the subject application are respectfully requested.

Claims 1, 4, 6-12, 15, 17-19, 23 and 25-34 are pending in the application. Claims 1, 15, 19 and 23 are independent.

The Applicant has amended each of the independent claims and believes them to be allowable for the reasons to be developed below. The Applicant has added new dependent claims 25-34. No new matter has been added by the amendments.

The inventor (Jack Brass), the undersigned, and Applicant's Canadian representative (Mr. Rob Wilkes) would like to thank Examiners Barth and Rosenberger for the cordial and productive interviews of September 9 and October 29, 2003. The Examiners' helpful comments and suggestions were instrumental in preparing this response. The undersigned would also like to thank Examiner Barth for the numerous courtesies extended during the various telephone conversations held regarding the interviews. The Examiner's extra effort is deeply appreciated.

Claims 1-4, 6-12, 15, 17-19 and 23 were rejected as being unpatentable over Kalley and Lebens, for the reasons

detailed at pages 2-7 of the Office Action. Applicant respectfully traverses all art rejections.

As discussed at the interview, each of the independent claims recites a novel, non-obvious combination of structure and/or function whereby a fault-detecting apparatus or method activates an LED to emit radiation having most of its energy within a visible range of from 395 to 415 nanometers. At least a portion of the radiation is directed onto a body to excite luminescent material. The radiation emitted from the LED includes visible light (e.g., within the narrow 395-415 nanometer range) which is visually distinguishable from the excited luminescent material.

In contrast, neither Kalley nor Lebens discloses or suggests (either individually or in combination) such unique combinations that emit radiation having most of its energy within a visible range of from 395 to 415 nanometers, including visible light that is visually distinguishable from the excited luminescent material.

In the Office Action, the Examiner quite properly applied the broad emitted bandwidth of Kalley (e.g., 300-700 nanometers, see Col. 1, lines 49-51), which may be used with filters or reflectors that nevertheless transmit broad bandwidth radiation of 400-500 nanometers for blue light, or

300-400 nanometers for ultraviolet light (see Col. 4, lines 24-29). The Examiner reasoned that those practicing the Kalley invention would likely expect that the spectral output of the lighting device (and thus the particular LEDs) would be selected depending on which dye is present. The Examiner kindly noted that the range forming part of the claims should be distinguished on the basis of unexpected results, citing MPEP 716.02.

The Applicant notes that the selection of the ranges specified by the Applicant is based on factors that include factors other than peak fluorescent response from the dye. For example, the dyes typically used in fault testing for air conditioning systems have peak fluorescent response at approximately 440 nanometers. Such a dye includes those sold by Cliplight Manufacturing Company of Toronto, Canada.

Rather, the radiation is emitted with most of its energy within a visible range of from 395 to 415 nanometers. This produces a barely visible light (as previously noted by the Examiner). This dimly visible light provides illumination of a body on which the light is shone without adversely affecting low light or night vision of a user, and the illumination provides a target for the user to search for a fluorescent response indicative of a fault.

Each of the independent claims requires at least one LED to emit radiation to cause the luminescent material to be excited, and to cause the at least one LED to emit radiation having most of its energy within a visible range from 395 to 415 nanometers, and to emit substantially no visible light above 415 nanometers, and the radiation emitted from the at least one LED includes visible light within a range of from 395 to 415 nanometers that is visually distinguishable from the excited luminescent material.

It is unexpected that a particular visible wavelength or range of wavelengths selected using factors that include factors other than peak fluorescent response of a luminescent material with which it is to be used would be particularly advantageous over another wavelength or range of wavelengths.

Applicant respectfully submits that the unexpected results achieved by the present invention were demonstrated at the October 29 interview. Specifically, using an LED emitting radiation having most of its energy in the 395-415 range and a luminescent material, the inventor Jack Brass demonstrated that the claimed narrow bandwidth provided both dimly visible light (to allow the user to navigate to the location where a fault may be illuminated) and exciting radiation (which stimulated

visually distinguishable light from the excited luminescent material). This demonstrates that the bandwidth specified in the claims is critical in achieving the advantageous results described in the specification and demonstrated at the interview. Accordingly, Applicant respectfully submits that unexpected results have been demonstrated to show that the bandwidth specified in the claims would not have been obvious from the teachings of Kalley.

The targeting effect referred to above is enhanced when the beam angle is limited to 30 degrees and less. This limitation forms part of new dependent claims 25, 26, 30, and 34. The targeting effect is also further enhanced when the at least one LED is used within a limited distance of the body to be tested. A distance limitation forms part of new dependent method claims 27-29 and 31-33.

In view of the above amendments and remarks, it is believed that this application is now in condition for allowance, and a Notice thereof is respectfully requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 625-3507.

All correspondence should continue to be directed to our  
address given below.

Respectfully submitted,



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